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Commissioner for Patents

The Examiner's Answer to the Appeal Brief, filed 12/19/2007, was mailed out on 3/17/2008 but is missing the text for the grounds of rejection, in section 9 of the Examiner's Answer. The text for the grounds of rejection can be found in the Final Rejection mailed 6/19/2007.

Additionally, the text for the grounds of rejection is found below:

Claim Rejections - 35 USC § 102
1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-3, 5, 12-14, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bray et al. (US Patent 6,529,905 B1).
As per claim 1, Bray teaches "A method for controlling concurrent access of prefix encoded nodes in a hierarchically structured document" (see Abstract and column 5 lines 4-32)
"comprising steps of: a. processing an explicit lock request on a node by determining ancestor nodes from said node," (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)
"b. deriving implicitly from said explicit lock request, a set of locks for said determined ancestor nodes," (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)
"c. comparing said derived set of implicit locks with existing lock modes for said determined ancestor nodes," (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)
"and d. granting or denying said explicit lock request on said node based on results of said comparing step." (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)
As per claim 2, Bray teaches "said hierarchically structured document is an XML document." (column 5 lines 4-18)
As per claim 3, Bray teaches "said node is comprised of data and a node identifier (ID)." (column 5 lines 19-32)
As per claim 5, Bray teaches "granting said explicit lock request, one or more of said implicitly derived locks are implicitly applied to said ancestor nodes." (column 8 lines 1-13, column 8 line 63 – column 9 line 5)

As per claim 12, Bray teaches "An article of manufacture comprising a computer usable medium having computer readable program code embodied therein which implements concurrent access control of prefix encoded nodes in a hierarchically structured document" (see Abstract and column 5 lines 4-32)

"comprising modules implementing code for: a. processing an explicit lock request on a node by determining ancestors nodes from said node," (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

"b. deriving from said explicit lock request, a set of implicit locks for said determined ancestor nodes," (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

"c. comparing said derived set of implicit locks with existing lock modes for said determined ancestor nodes," (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

"and granting or denying said explicit lock request on said node based on results of said comparing step." (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

As per claim 13, Bray teaches "said hierarchically structured document is an XML document." (column 5 lines 4-18)

As per claim 14, Bray teaches "said node is comprised of data and a node identifier (ID)." (column 8 lines 1-13)

As per claim 19, Bray teaches "A system for controlling concurrent access of prefix encoded nodes in a hierarchically structured document" (see Abstract and column 5 lines 4-32)

"comprising: a. a processor receiving as input, an explicit lock request on a node and providing as output ancestors nodes determined from said node," (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

"b. a converter receiving as input said explicit lock request and deriving as output a set of implicit locks for said output ancestor nodes," (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

"c. a comparator comparing said derived set of implicit locks with existing lock modes for said output ancestor nodes," (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

"and a lock request grantor, granting or denying said explicit lock request on said node based on output of said comparator." (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

As per claim 20, Bray teaches "A method for controlling concurrent access of prefix encoded nodes in a hierarchically structured document" (see Abstract and column 5 lines 4-32)

"comprising steps of: a. processing an explicit lock release on a node by determining ancestors nodes from said node; said explicit lock release requested by a transaction;" (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

"b. deriving from said explicit lock release, a set of implicit lock modes for said determined ancestor nodes," (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

"and c. releasing locks on determined ancestor nodes corresponding to said derived implicit lock mode; said locks on determined ancestor nodes originally requested by said transaction." (column 8 line 63 – column 9 line 5, wherein the locks are released once the process is complete)

As per claim 21, Bray teaches "An article of manufacture comprising a computer usable medium having computer readable program code embodied therein which implements concurrent access control of prefix encoded nodes in a hierarchically structured document" (see Abstract and column 5 lines 4-32)

"comprising modules executing: a. explicit lock request processing on a node by determining ancestor nodes from said node," (Figure 6, column 5 lines 33-61, and column 8 lines 24-34, wherein a lock is requested to be created and the parent of a target node are identified)

"b. implicit derivation of a set of locks for said determined ancestor nodes from said explicit lock request," (column 6 line 60 – column 7 line 12, column 8 line 63 – column 9 line 5, wherein the locks applied to ancestors of target nodes are determined by a locking manager after a lock request for a target node)

"c. a comparison of said derived set of implicit locks with existing lock modes for said determined ancestor nodes," (column 5 line 62 – column 6 line 4, wherein the locks on the parents are determined)

"and d. granting or denying said explicit lock request on said node based on results of said comparing step." (column 7 lines 20-50, wherein if a lock is found on the parent or child nodes, the lock request is denied)

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 4, 6-11, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bray et al. (US Patent 6,529,905 B1) in view of Sadjadi (US Patent 6,850,938)

As per claim 4, Bray is disclosed as per claim 1 above. Bray does not teach "said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode." Sadjadi teaches "said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode." (column 7 lines 4-33, wherein a lock manager can use different lock types 'S' for shared, 'E' for exclusive, and 'O' for optimistic).

It would have been obvious for one of ordinary skill in the art to combine Bray's method of locking elements of a hierarchal data structure using parent and child nodes with Sadjadi's method of a lock for computer resource objects being of types shared, exclusive, and optimistic mode. This gives the user the advantage of being able to control more specifically the lock management of a hierarchal data structure by adding fine granularity to lock management. The motivation for doing so would be to utilize optimistic locking in legacy databases using past locking systems without having to change the database schema (column 3 lines 26-57).

As per claim 6, Sadjadi teaches "said implicitly derived lock mode is any of: an intention-shared (IS), intention-exclusive (IX), or a shared, intention-exclusive lock (SIX) mode." (column 9 lines 14-43 and Table 1)

As per claim 7, Sadjadi teaches "a. an explicit lock request on said node in lock mode S implicitly derives a set of locks in IS mode," (column 10 lines 22-31)

"b. an explicit lock request on said node in lock mode X implicitly derives a set of locks in IX mode," (column 10 lines 32-40)

"c. an explicit lock request on said node in lock mode IS implicitly derives a set of locks in IS mode," (column 10 lines 41-50)

"d. an explicit lock request on said node in lock mode IX implicitly derives a set of locks in IX mode," (column 10 lines 51-61)

"and e. an explicit lock request on said node in lock mode SIX implicitly derives a set of locks in SIX mode." (column 11 lines 24-32)

As per claim 8, Sadjadi teaches "said lock request is denied if said comparison step results in incompatibility and granted otherwise;" (column 11 lines 46-56)

"said comparison step results in compatibility between said existing and derived lock modes if lock request mode for said node is: a. IS and said ancestor nodes are locked in any existing mode of: IS, IX, S, or SIX," (Table 2 and column 12 lines 10-19)

"b. IX and said ancestor nodes are locked in either existing mode of: IS or IX," (column 12 lines 39-45)

"c. S and said ancestor nodes are locked in either existing mode of: IS or S," (column 12 lines 46-58)

"d. SIX and said ancestor nodes are locked in existing mode of IS," (column 12 line 59 – column 13 line 6)

"and e. X and said ancestor nodes are not currently locked;" (column 13 lines 7-16, column 13 lines 26-33)

"and said comparison step results in incompatibility between said existing and derived lock modes, otherwise." (column 13 lines 17-25)

As per claim 9, Bray teaches "said comparing step is facilitated by a logical data structure indicating existing lock information for each node; said logical data structure comprising logical lock tree nodes." (Figure 3, 4 and column 4 lines 53-66)

As per claim 10, Bray teaches "said logical lock tree nodes are comprised of at least: a node ID field, a transaction ID field, and a lock mode field." (column 5 lines 33-44)

As per claim 11, Bray teaches "granting a lock request, a logical lock tree node for said node is created and ID of said node is inserted into said logical lock tree node ID field, a transaction ID is inserted into said logical lock tree node transaction ID field, a lock mode is inserted into said logical lock tree node lock mode field;" (column 5 lines 45-61)

"and if logical lock tree nodes exist for said ancestor nodes, adding either one or both of: a transaction ID to said logical lock tree node transaction ID fields and adding said lock mode to said logical lock tree node lock mode fields;" (column 8 lines 24-59)

"else creating logical lock tree nodes for said ancestor nodes, inserting IDs of said ancestor nodes into said logical lock tree node ID fields, inserting a transaction ID into said logical lock tree node transaction ID fields, and inserting a lock mode into said logical lock tree node lock mode fields." (column 9 lines 8-47)

As per claim 15, Bray is disclosed as per claim 1 above. Bray does not teach "said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode." Sadjadi teaches "said explicit lock mode is any of: a shared (S), update (U), or exclusive (X) lock mode." (column 7 lines 4-33, wherein a lock manager can use different lock types 'S' for shared, 'E' for exclusive, and 'O' for optimistic).

It would have been obvious for one of ordinary skill in the art to combine Bray's method of locking elements of a hierarchical data structure using parent and child nodes with Sadjadi's method of a lock for computer resource objects being of types shared, exclusive, and optimistic mode. This gives the user the advantage of being able to control more specifically the lock management of a hierarchal data structure by adding fine granularity to lock management. The motivation for doing so would be to utilize optimistic locking in legacy databases using past locking systems without having to change the database schema (column 3 lines 26-57).

As per claim 16, Sadjadi teaches "said implicitly derived lock mode is any of: an intention-shared (IS), intention-exclusive (IX), or a shared, intention-exclusive lock (SIX) mode." (column 9 lines 14-43 and Table 1)

As per claim 17, Sadjadi teaches "a. an explicit lock request on said node in lock mode S implicitly derives a set of locks in IS mode," (column 10 lines 22-31)

"b. an explicit lock request on said node in lock mode X implicitly derives a set of locks in IX mode," (column 10 lines 32-40)

"c. an explicit lock request on said node in lock mode IS implicitly derives a set of locks in IS mode," (column 10 lines 41-50)

"d. an explicit lock request on said node in lock mode IX implicitly derives a set of locks in IX mode," (column 10 lines 51-61)

"and e. an explicit lock request on said node in lock mode SIX implicitly derives a set of locks in SIX mode." (column 11 lines 24-32)

As per claim 18, Sadjadi teaches "said comparison step results in compatibility between said existing and derived lock modes if lock request mode for said node is: a. IS and said ancestor nodes are locked in any existing mode of: IS, IX, S, or SIX," (Table 2 and column 12 lines 10-19)

"b. IX and said ancestor nodes are locked in either existing mode of: IS or IX," (column 12 lines 39-45)

"c. S and said ancestor nodes are locked in either existing mode of: IS or S," (column 12 lines 46-58)
"d. SIX and said ancestor nodes are locked in existing mode of IS," (column 12 line 59 – column 13 line 6)
"and e. X and said ancestor nodes are not currently locked;" (column 13 lines 7-16, lines 26-33)
"otherwise, said comparison step results in incompatibility between said existing and derived lock modes." (column 13 lines 17-25)

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168

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